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551 TECHNICAL NOTES

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The Jack-Pine Budworm -- A Menace to Michigan Jack Pine

The jack-pine budworm, a biological variety of the spruce budworm (*Choristoneura fumiferana* Clem.), has been in outbreak in localized areas of Michigan for the last three years. It has severely defoliated jack pines on the Huron National Forest and on the Au Sable, Higgins Lake, and Ogemaw State Forests in the Lower Peninsula and on the Rapid River Ranger District of the Hiawatha National Forest in the Upper Peninsula.

Substantial losses directly associated with the budworm in Michigan and Minnesota have been reported for jack pine of all size classes. To determine what losses were occurring in jack pine stands infested with budworm on the western third of the Huron National Forest during the last two years, a timber-drain survey was conducted in cooperation with the U. S. Forest Service. The plan of survey was designed to produce results statistically accurate to 8 percent of the total volume on the 109,000 acres of jack pine type within the Forest boundaries. Although losses for which the budworm is solely responsible are not as yet apparent from the findings, mortality in certain classes (see table) is so critical that forest managers should be alert to the menace of continued budworm attack.

Mortality of Jack Pine Infested by Budworm

| Tree size class | Tree mortality per acre | | |
|-----------------|-------------------------|-----------|---------------------|
| | Average | Range | Proportion of stand |
| | Number | Number | Percent |
| Poles | 1/0.2 | 1/0 - 0.7 | 3 |
| 4-inch saplings | 10 | 0 - 18 | 8 |
| 2-inch saplings | 71 | 20 - 180 | 33 |
| Reproduction | 30 | 2 - 62 | 1-42 |

1/ Cords, not number of trees.

No correlation was found between the severity of budworm defoliation for two seasons and the magnitude of the mortality among poles, saplings, and reproduction. The seriousness of the losses in jack pine during the current outbreak will depend greatly upon the course taken by the outbreak in the next few seasons. Continued defoliation will undoubtedly result in increased losses in the smaller size classes and mortality and top killing among merchantable trees. Should the outbreak diminish or abate, the trees showing the least defoliation will undoubtedly recover and losses become correspondingly less severe. Surveys to follow the course of the outbreak will be conducted in 1952.

Current recommendations for the alleviation of the jack-pine budworm outbreak through management practices include salvage cutting in areas of most severe budworm defoliation and the removal of suppressed and orchard-type jack pine conducive to build-up of budworm populations.

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